ALASKA DEPARTMENT OF FISH AND GAME DIVISION OF COMMERCIAL FISHERIES





Sam Cotton, Commissioner Forrest R. Bowers, Acting Director



Contact:

Jim Menard, Area Manager Justin Leon, Asst. Area Manager Janet Bavilla, Larry Neff, Joyce Soong, Catch Monitors Phone: (907) 443-5167 Nome Area Office 103 East Front Street Nome, AK 99762 Date Issued: October 12, 2018

2018 NORTON SOUND SALMON SEASON SUMMARY

COMMERCIAL SALMON FISHERY

As in 2017, well above average to near record runs of chum, pink, sockeye and coho salmon highlighted the 2018 fishery. The coho salmon commercial harvest was a record and the chum salmon commercial harvest was the second highest on record and the best since 1983. The sockeye salmon commercial harvest, although a small portion of the overall harvest, was the second highest in history at over 3,600 fish. The pink salmon run was one of the greatest runs for an even-numbered year and pink salmon escapements were records at some salmon counting projects. However, there was minimal interest from the only buyer in purchasing pink salmon. No commercial fishing targeting king salmon was allowed; however, the king salmon run met escapement for the first time since 2015.

Table 1 lists the Norton Sound salmon current year and historical commercial harvests relative to the recent 5-year (2013–2017) and 10-year (2008–2017) averages. The combined commercial harvest of all salmon species was 543,479 fish, including those fish retained for personal use, and ranked highest since 1998 in Norton Sound. There were 149 commercial permits fished in 2018, which was ten more permits fished than last year. The number of commercial permits fished was the second highest total since 1993. The 2018 fishery value to the fishers of \$4,001,400 was a record and was the eighth year in the last nine years that the value exceeded one million dollars. Previous to 2010 the last time the value of the fishery exceeded one million dollars was in the 1980s. Adjusting for inflation no other years had a higher fishery value than 2018. This summary should be considered preliminary and will be updated with additions and corrections in subsequent reports.

The record coho salmon catch of 260,471 fish was roughly half of the Norton Sound salmon harvest in 2018 (Table 2) and was 36% above the previous record catch in 2017 and over 110%

and 165%, respectively, above the recent 5-year and 10-year averages. The chum salmon catch of 238,030 fish was the highest since 1983 and ranked second highest in history (Table 3).

Only one salmon buyer operated in Norton Sound during the 2018 season. The Unalakleet fish plant operated by Norton Sound Seafood Products (NSSP) was the base of commercial salmon fisheries operations. Salmon were both delivered to the Unalakleet dock and tendered from all other subdistricts, except from the Nome Subdistrict. The Nome Subdistrict catch was processed at the NSSP plant in Nome and some Golovin and Elim catches were also processed in Nome. The floating processor *Pavlof* was also anchored offshore of Elim processing and freezing salmon delivered by tenders.

The average price paid for king salmon was \$2.99/lb, \$1.40/lb for sockeye salmon, \$1.40/lb for coho salmon, \$0.25/lb for pink salmon, and \$.80/lb for chum salmon.

SUBSISTENCE SALMON FISHERY

Subsistence salmon fishers in the Port Clarence District and Subdistricts 1–3 (Nome, Golovin, and Elim) were required to possess a subsistence permit for each household that fished in these locations. The permits identify the type of gear used, and the bag limit, that is specific to each body of water. In addition, the permit contains a catch calendar where the permit holder records catches in numbers of each species of fish for each day fished. If the subsistence fishers have filled their harvest limit in one river they can fish in another river.

The only places where there are limits on subsistence salmon harvest are in the Nome Subdistrict, and Pilgrim River and Salmon Lake in the Port Clarence District. Salmon limits have been in place in Nome Subdistrict since 1985 but have been removed in a number of rivers with the improving chum salmon runs in recent years. Subsistence permits are important to management because they identify users and harvests, but the actual catch information cannot be compiled in most circumstances until well after the season when the permits are returned. In southern Norton Sound, villages are surveyed to estimate the subsistence harvest and likewise this information is not available until well after the season.

SEASON SUMMARY BY SUBDISTRICT

Nome - Subdistrict 1

This was the sixth consecutive season that commercial fishing was allowed since the mid–90s. There were 7 permit holders that fished in 2018, which was the same as last season, but the effort was only a little more than half of any other district. Permit holders fished during 15 of the 17 fishing periods, forgoing fishing during the third to last fishing period and the last of the year. The coho salmon commercial harvest of 8,964 fish was a record and was over seven and a half times higher than the previous record in 1982. The sockeye salmon commercial harvest of 398 fish was twice the 5-year average but lower than last years' record catch. The chum salmon commercial harvest of 10,002 fish was the highest since 1986 and ranked seventh highest in history.

In recent years subsistence fishing time has been liberalized in Nome Subdistrict by increasing marine gillnet fishing time from three days a week to five days a week west of Cape Nome and seven days a week east of Cape Nome. Also, fresh water gillnet fishing time has been increased from two 48-hour fishing periods a week to five days a week fishing.

For over 40 years subsistence salmon permits have been required for the Nome Subdistrict and during the 2018 season 620 permits were issued which is the highest on record.

Observations during the season indicated that the Nome River was once again the river that had the most fishing effort. Nome River had its highest pink salmon escapement count on record and the greatest pink salmon escapement of any river in the subdistrict with over 3.2 million fish counted through Nome River weir. Most salmon counting projects in Subdistrict 1 had above average chum salmon escapement counts, well above average pink salmon escapement counts, and record coho salmon escapement counts.

Golovin - Subdistrict 2

The season began with three 24-hour fishing periods starting June 23 through July 1 per the buyer's request. From July 3 to August 3 there were two 48-hour periods a week, with the exception of one 24-hour period and one 72-hour period that occurred to allow additional fishing time because of above average salmon returns. Beginning August 4 fishing period lengths continued to be increased as record coho salmon returns were experienced and there were no buyer capacity concerns. The last two weeks of the season had 120-hour periods and the longest period was 144 hours.

The chum salmon commercial harvest of 25,070 fish was the highest harvest since fishing resumed in 2008. Coho salmon commercial harvest was above average and the harvest of 2,995 fish was the fifth highest since 2008.

Subsistence fishing was allowed to continue seven days a week with no catch limits throughout the season.

The Fish River tower was in its fifth year of operation and escapement counts were 36,612 chum salmon, over 2.7 million pink salmon, and 17,119 coho salmon. Operations didn't begin until July 10 due to high water. The aerial survey escapement goal range for Niukluk River and Ophir Creek is 750-1,600 coho salmon but the aerial survey was not completed this year because of poor viewing conditions (Table 4).

Elim - Subdistrict 3

The Elim Subdistrict commercial fishing schedule was the same as the Golovin Subdistrict, with less additional fishing time in the final month of the season because of more participation in the Elim Subdistrict than the Golovin Subdistrict.

The pink salmon run was well above average but there were no directed pink salmon fishing periods. The chum salmon run was well above average and the commercial harvest of 38,416 fish was the highest since 1983 and the tenth highest on record. The coho salmon run was one of the greatest on record and the commercial harvest of 19,987 fish was a new record, narrowly surpassing last year's record commercial harvest.

2018 Kwiniuk River tower escapement counts were 87 king salmon, 41,658 chum salmon, 1,804,480 pink salmon, 6 sockeye salmon, and 17,074 coho salmon. King salmon passage was below the escapement goal of 250 fish for the third year in a row, but the chum salmon passage well above the escapement goal range of 11,500-23,000 fish. Pink salmon escapement was well above average and coho salmon escapement was the second highest on record.

Norton Bay - Subdistrict 4

The Norton Bay Subdistrict commercial fishing schedule was the same as the Elim Subdistrict, but fishing was closed two weeks earlier because of lower commercial harvest rates.

The chum salmon commercial harvest of 14,548 fish was less than half of the previous years' chum salmon commercial harvest but was still ninth highest on record. The coho salmon commercial harvest of 1,513 fish was half of last year's coho salmon harvest and the second lowest commercial harvest in the last 10 years.

2018 Inglutalik River tower escapement counts were 207 king salmon, 28,395 chum salmon, 20,223 pink salmon, 99 sockeye salmon, and 2,349 coho salmon. Escapement counts were below average for all salmon in 2018 based on its operation since 2011. It is important to keep in mind that in most years high water prevents operating the project during coho salmon season. In 2018 Inglutalik River tower operated into August but started a week and a half later into the season than last season due to high water.

Shaktoolik and Unalakleet - Subdistricts 5 and 6

Both the Shaktoolik and Unalakleet Subdistricts share a common commercial fishing boundary and management actions typically encompass both subdistricts because salmon tend to intermingle and the harvest in one subdistrict affects the movement of fish in the adjacent subdistrict. Commercial

fishing is typically only allowed after king salmon have been observed in increasing numbers in subsistence fishing nets and the department is confident the midpoint of the king salmon escapement goal range of 1,200-2,600 fish will be reached at the North River counting tower. If the department does not project that the midpoint of the king salmon escapement goal range will be reached then no commercial gillnet fishing periods are allowed for any species until after June 30.

The department forecast for 2018 was for a below average run of king salmon and additional restrictions on subsistence fishing would be required to reach sufficient escapement. After department staff met with residents of Shaktoolik and Unalakleet it was decided that Unalakleet River would close to subsistence net fishing June 1. In addition, the marine waters of southern Norton Sound from Bald Head (near Elim) south to Wood Point (near St. Michael) and except the Koyuk River, subsistence salmon fishing in all fresh waters from Bald Head to Black Point were closed to subsistence salmon fishing June 9. After June 9 one 24-hour fishing period with gillnets restricted to 6 inches or smaller mesh size was allowed each week in the marine waters. In June there were two weeks that allowed for two 24-hour fishing periods because of good subsistence salmon catches and favorable weather. In July subsistence fishing time in marine waters had two fishing periods at 24 hrs. before the lower end of the king salmon escapement goal was reached and all waters stayed open to subsistence salmon gillnet fishing on July 15. The first in-river gillnet fishing period in both subdistricts was a 12-hour fishing period on July 4 with restricted mesh and there was only one other in-river gillnet fishing period before all waters stayed open to subsistence salmon gillnet fishing on July 15 and that fishing period was for 12 hours.

Commercial fishing targeting chum salmon began on July 1 with a 24-hour fishing period and all fishing periods throughout the season occurred concurrent for both subdistricts. Chum salmon escapement counts and chum salmon commercial harvest numbers allowed for two 48-hour fishing periods per week in July. Record coho salmon escapement counts and commercial harvest allowed for a minimum of 48-hour fishing periods in August with the possibility of longer fishing periods if there were no buyer capacity or buyer staff concerns. In August there were two 72-hour fishing periods and a 96-hour fishing period as well. Continued above average coho salmon escapement counts of coho salmon allowed for two 120-hour fishing periods in September.

Shaktoolik Subdistrict commercial catches for chum salmon were fourth highest on record with 41,482 fish caught and Unalakleet Subdistrict commercial catches for chum salmon were second highest on record with 108,305 fish caught (Table 2). Coho salmon commercial harvest was a record for both subdistricts with 71,232 fish caught in Shaktoolik and 155,578 fish caught in Unalakleet. Although an incidental catch, the sockeye salmon harvest was the highest on record in both subdistricts with 516 fish caught in Shaktoolik and 1,766 fish caught in Unalakleet (Table 2).

Observations during the season indicated that the Unalakleet River was once again the river that had the most fishing effort out of Subdistricts 5 and 6, the Unalakleet and Shaktoolik Subdistricts. Unalakleet River weir had its highest king salmon escapement count on record and most salmon counting projects within Subdistricts 5 and 6 had average to above average chum salmon escapement counts, average pink salmon escapement counts, and record coho salmon escapement counts.

Port Clarence District

Port Clarence District is the salmon district immediately to the northwest of Norton Sound and it has a larger run of sockeye salmon than Norton Sound. Sockeye salmon return to Salmon Lake via Pilgrim River which is easily accessible by a road from Nome.

The sockeye salmon run was one of the best on record and the department waived subsistence catch limits early in the season. There were 498 Pilgrim River subsistence permits issued which was the second highest on record. The major subsistence gear for Pilgrim River harvest was seine.

Port Clarence also has large summer and fall chum salmon runs that were harvested by residents of Teller and Brevig Mission using gillnets in marine waters.

ESCAPEMENT

Table 4 summarizes escapement assessments for the major index river systems of the Norton Sound and Port Clarence Districts in 2018. These assessments were often qualitative and relative to historical escapement sizes.

Department salmon counting projects in Norton Sound in 2018 included a counting tower on the Kwiniuk River and weirs on the Bonanza River, Nome River, and Solomon River. Norton Sound Economic Development Corporation (NSEDC) assists with staffing at the Bonanza River, Kwiniuk River, and Nome River projects.

Eight additional salmon counting projects were also operated in the management area this season. The Eldorado River and Pilgrim River had weir projects and the Fish, Inglutalik, North and Shaktoolik Rivers had counting towers which were setup and operated by NSEDC. Cooperative weir projects were operated on Bonanza River and Snake River by the department and NSEDC. Also, a cooperative weir project was operated on the Unalakleet River by the department with assistance from NSEDC and Native Village of Unalakleet. Funding for the Unalakleet River weir project was provided by United States Fish & Wildlife Service — Office of Subsistence Management.

High water prevented aerial surveys during the beginning of the season. As usual, the Nome Subdistrict streams received the most intensive assessment efforts because salmon stocks local to the Nome area are easily accessed by the road system and are exposed to intensive subsistence and sport fishing pressure.

Table 1. Norton Sound Salmon Catch and Dollar Value, 1961-2018.

Year	Total	Number of	Gross Value of
	Catch	Permits	Catch to Permit Holders
1961	101,711	a	a
1962	232,431	a	\$105,800
1963	224,378	a	\$104,000
1964	164,671	a	\$51,000
1965	39,203	a	\$21,483
1966	100,345	a	\$68,000
1967	74,818	a	\$44,038
1968	124,409	a	\$63,700
1969	178,972	a	\$95,297
1970	178,218	a	\$99,019
1971	141,977	a	\$101,000
1972	149,494	a	\$102,225
1972	176,797	a	\$308,740
1973	315,829	a	\$437,127
1974	251,861	a	\$413,255
1976	193,063	a	\$285,283
1977	257,325	164	\$546,010
1977	531,948	176	\$907,330
1978	350,401	175	\$878,792
1979	444,337	159	\$572,125
1980	444,337	167	\$761,658
1981	511,208	164	\$1,069,723
1982	456,420	170	\$946,232
1983	342,159	141	\$738,064
1985	180,200	155	\$818,477
1986	230,400	163	\$546,452
1987	136,283	164	\$517,894
1988	225,132	152	\$760,641
1989	92,811	110	\$319,489
1990	131,665	128	\$474,064
1991	156,789	126	\$413,479
1992	199,933	110	\$448,395
1993	263,670	153	\$368,723
1994	1,108,184	119	\$863,060
1995	181,393	105	\$356,164
1996	571,241	86	\$340,347
1997	79,141	102	\$363,908
1998	641,396	82	\$358,982
1999	23,051	60	\$76,860
2000	217,873	79	\$149,907
2000	30,849	51	\$56,921
2001	2,365	12	\$2,941
2002	20,653	30	\$64,473
2003	48,381	36	\$122,506
2004	48,381 89,669	40	\$122,300 \$296,154
2003	07,009	40	\$290,134

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Table 1–Page 2 of 2.

Year	Total	Number of	Gross Value of
1 Cai			
	Catch	Permits	Catch to Permit Holders
2006	140,873	61	\$389,707
2007	152,357	71	\$572,195
2008	221,101	91	\$759,451
2009	138,737	88	\$722,167
2010	211,622	115	\$1,220,487
2011	177,167	123	\$1,269,730
2012	305,657	123	\$758,908
2013	181,247	124	\$1,183,236
2014	403,715	128	\$1,915,749
2015	369,801	128	\$1,940,408
2016	366,239	141	\$1,237,229
2017	378,561	139	\$2,788,316
2018	543,479	149	\$4,001,400
5-year			
avg. b	339,913	132	\$1,812,988
10-year			
avg. c	275,385	120	\$1,379,568

^a Information not available.

^b 2013-2017.

^c 2008-2017.

Table 2.—Norton Sound commercial salmon harvest summary by subdistrict, 2018.

			Subdistricts					
		1	2	3	4	5	6	Total
Number of	Number of Permit Holders		18	34	12	37	80	149 ^a
King	Number	8	20	73	49	19	101	270
	Weight (lbs)	74	158	750	580	190	1,027	2,779
Sockeye	Number	398	74	399	158	516	1,766	3,311
•	Weight (lbs)	2,368	434	2,172	908	2,916	10,180	18,978
Coho	Number	8,964	2,995	19,987	1,513	71,232	155,578	260,269
	Weight (lbs)	64,663	20,428	141,125	10,847	502,884	1,103,037	1,842,984
Pink	Number	2,816	4,171	9,328	1,007	2,489	19,312	39,123
	Weight (lbs)	8,827	12,330	25,909	2,742	7,327	59,058	116,193
Chum	Number	10,002	25,070	38,416	14,548	41,482	108,305	237,823
C110111	Weight (lbs)	71,937	183,296	271,458	106,338	295,007	767,578	1,695,614
Total ^b	Number	22,188	32,330	68,203	17,275	115,738	285,062	540,796
	Weight (lbs)	147,869	216,646	441,414	121,415	808,324	1,940,880	3,676,548

^a Total number of permit holders is not the sum of permit holders in each subdistrict because some permit holders fished in more than one subdistrict.

^b Total does not include 636 kings, 312 sockeyes, 202 cohos, 1,326 pinks and 207 chums retained for personal use.

Table 3. Norton Sound Salmon Catch, 1961-2018.

Year	King	Sockeye	Coho	Pink	Chum	Total
1961	5,300	35	13,807	34,237	48,332	101,711
1962	7,286	18	9,156	33,187	182,784	232,431
1963	6,613	71	16,765	46,180	154,749	224,378
1964	2,018	126	98	13,567	148,862	164,671
1965	128	30	2,030	220	36,795	39,203
1966	1,553	14	5,755	12,778	80,245	100,345
1967	1,804	0	2,379	28,879	41,756	74,818
1968	1,045	0	6,885	71,179	45,300	124,409
1969	2,392	0	6,836	86,949	82,795	178,972
1970	1,853	0	4,423	64,908	107,034	178,218
1971	2,593	0	3,127	4,895	131,362	141,977
1972	2,938	0	454	45,182	100,920	149,494
1973	1,918	0	9,282	46,499	119,098	176,797
1974	2,951	0	2,092	148,519	162,267	315,829
1975	2,393	2	4,593	32,388	212,485	251,861
1976	2,243	11	6,934	87,919	95,956	193,063
1977	4,500	5	3,690	48,675	200,455	257,325
1978	9,819	12	7,335	325,503	189,279	531,948
1979	10,706	57	31,438	167,411	140,789	350,401
1980	6,311	40	29,842	227,352	180,792	444,337
1981	7,929	56	31,562	232,479	169,708	441,734
1982	5,892	10	91,690	230,281	183,335	511,208
1983	10,308	27	49,735	76,913	319,437	456,420
1984	8,455	6	67,875	119,381	146,442	342,159
1985	19,491	166	21,968	3,647	134,928	180,200
1986	6,395	233	35,600	41,260	146,912	230,400
1987	7,080	207	24,279	2,260	102,457	136,283
1988	4,096	1,252	37,214	74,604	107,966	225,132
1989	5,707	265	44,091	123	42,625	92,811
1990	8,895	434	56,712	501	65,123	131,665
1991	6,068	203	63,647	0	86,871	156,789
1992	4,541	296	105,418	6,284	83,394	199,933
1993	8,972	279	43,283	157,574	53,562	263,670
1994	5,285	80	102,140	982,389	18,290	1,108,184
1995	8,860	128	47,863	81,664	42,898	181,393
1996	4,984	1	68,206	487,441	10,609	571,241
1997	12,573	161	32,284	20	34,103	79,141
1998	7,429	7	29,623	588,013	16,324	641,396
1999	2,508	0	12,662	0	7,881	23,051
2000	752	14	44,409	166,548	6,150	217,873
2001	213	44	19,492	0	11,100	30,849
2002	5	1	1,759	0	600	2,365
2003	12	21	17,060	0	3,560	20,653
2004	22	47	42,016	0	6,296	48,381
2005	151	12	85,523	0	3,983	89,669

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Table 3–Page 2 of 2.

Year	King	Sockeye	Coho	Pink	Chum	Total
2006	20	3	130,808	0	10,042	140,873
2007	19	2	126,136	3,769	22,431	152,357
2008	83	60	120,309	75,525	25,124	221,101
2009	84	126	87,041	17,364	34,122	138,737
2010	140	103	62,079	31,557	117,743	211,622
2011	185	369	58,917	7,141	110,555	177,167
2012	197	134	37,056	205,498	62,772	305,657
2013	151	247	53,802	8,338	118,709	181,247
2014	289	519	112,756	182,406	107,745	403,715
2015	1,288	4,119	153,928	62,888	147,497	369,720
2016	324	2,888	102,890	208,961	51,176	366,239
2017	538	2,975	191,254	20,321	163,473	378,561
2018	906	3,623	260,471	40,449	238,030	543,479
5-year						
avg. a	518	2,150	122,926	96,583	117,720	339,896
10-year					_	
avg. b	328	1,154	98,003	82,000	93,892	275,377

a 2013-2017

b 2008-2017

Table 4.—Salmon counts of rivers and associated salmon escapement goal ranges (SEG, BEG or OEG), Norton Sound and Port Clarence, 2018.

		King Salmon		Chum Salmon				
	Weir/	Escapement	Aerial	Weir/	Escapement	Aerial	Aerial	
	Tower	Goal	Survey	Tower	Goal	Survey	Survey	
Stream	Count	Range	Count a	Count	Range	Count a	Expansion	
Salmon L.							•	
Grand Central R.								
Pilgrim R.	88			33,135				
Glacial L.								
Sinuk R.							11,061	
Cripple R.								
Penny R.								
Anvil Creek								
Snake R.	11			2,993	1,600 - 2,500 b	260		
Nome R.	54			5,213	2,900 - 4,300 b	305		
Flambeau R.					, ,	4,921	12,823	
Eldorado R.	30			42,298	6,000 - 9,200 ^b			
Bonanza R.	11			7,492	,	850		
Solomon R.	11			3,383		215		
Nome Subdistrict					23,000 - 35,000 ^c		85,238	
Fish R.	72			36,612	, ,			
Boston Cr.	7			40				
Niukluk R.								
Ophir Cr.								
Kwiniuk R.	87	250		41,658	11,500 - 23,000 ^d			
Tubutulik R.					9,200 - 18,400 ^e			
Ungalik R.					,	1,980		
Inglutalik R. f	207			28,395		1,530		
Shaktoolik R.	1,035			50,856				
Unalakleet R.	3,326			128,253				
Old Woman R.	,			, -				
North R.	2,577	1,200-2,600		25,872				

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Table 4.–Page 2 of 2.

	Coho Salmon				Sockeye S	almon		Pink Salmon	
	Weir/	Aerial	Escapement	Weir/	Aerial	Escapement	Weir/	Escapement	Aerial
	Tower	Survey	Goal	Tower	Survey	Goal	Tower	Goal	Survey
		Count			Count				
Stream	Count	a	Range	Count	a	Range	Count	Range	Count a
Salmon L.					20,627	Combined 4,000 -			
Grand Centra	ıl R.				5,900	8,000			
Pilgrim R.	239			33,802			46,490		
Glacial L.					1,570	800 - 1,600			
Sinuk R.									1,068,000
Cripple R.		1,009							300,000
Penny R.		690							80,800
Anvil Creek									
Snake R.	7,493	1,270		420			460,573		10,700
Nome R.	8,398			233			3,245,209	13,000	30,000
Flambeau R.	1,470				5				1,320
Eldorado R. b	47	702		3			190,631		
Bonanza R.	1,029	523		189			900,684		5,500
Solomon R.	162	1,015		18			458,125		10,000
Fish R.	17,119			48			2,705,742		
Boston Cr.									81,100
Niukluk R. Ophir Cr.			Combined 750-1,600						
Kwiniuk R.	17,074		650-1,300	6			1,804,480	8,400	
Tubutulik R.									
Ungalik R.		190							
Inglutalik R	2,349	70		99			20,223		
Shaktoolik R.	52,194			6			810,516		
Unalakleet R.	58,755			630					
Old Woman									
R.	10.055		##0 4 40°				4884.0	25.000	
North R.	19,353		550-1,100	66	(CEC) his		475,140	25,000	

Note: Data not available for all streams. Sustainable escapement goal (SEG), biological escapement goal (BEG), and optimal escapement goal (OEG) are listed.

^a All aerial surveys are rated fair to good, unless otherwise noted.

^b The Alaska Board of Fisheries (BOF) also established an OEG with the same range as the BEG.

^c BOF-established OEG is the same range as the BEG and is based on a combination of weir counts and expanded aerial survey counts. The OEG and BEG do not include Cripple and Penny rivers.

^d This represents the OEG in regulation. The BEG is 10,000-20,000 for the Kwiniuk River and 8,000-16,000 for the Tubutulik River.

^e The goal listed is actual fish and not aerial counts. However, at this time there is no counting project on the river.